THE RELATIONSHIP BETWEEN AGENCY COST AND CORPORATE PERFORMANCE AMONG MANUFACTURING COMPANIES IN MALAYSIA

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Pusat Pengajian Ekonomi, Kewangan dan Perbankan
SCHOOL OF ECONOMICS, FINANCE, AND BANKING
Universiti Utara Malaysia

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Abstract

The effect of agency cost on corporate performance has been long interest to financiers, economists, legal practitioners and business operators. But there is no study in this relationship focuses on the manufacturing companies especially in Malaysia. Therefore, this study aims to investigate the relationship between agency cost and corporate performance among manufacturing companies in Malaysia. Agency cost are measured by five independent variables namely leverage, size, growth, expense and efficiency. While corporate performance is measured by Return on Equity (ROE). This study used secondary data from public listed manufacturing companies listed in Bursa Malaysia. From total population of 457 manufacturing companies listed in Bursa Malaysia, 130 (28%) firms for sample was taken covering over period of 5 years from 2012 to 2016. The relationship between agency cost and corporate performance in this study is analyzed by performing regression analysis of panel data. The results show that three out of five proxy of agency cost are significantly related to corporate performance which measured by ROE. The three variables that are significantly related with Return on Equity (ROE) are efficiency, leverage and size. The other two variables that are found not significant related with corporate performance (ROE) which are company growth and expense. Hence the study found that agency cost to be significantly related with corporate performance.

Keyword: agency cost, corporate performance, firm's profitability, leverage, size, growth, expense, efficiency.

Abstrak

Kesan kos agensi kepada prestasi korporat telah lama menjadi tarikan kepada pembiaya, ahli ekonomi, pengamal undang-undang dan pengendali perniagaan. Tetapi masih lagi tiada kajian dalam hubungan ini yang fokus pada syarikat perkilangan terutamanya di Malaysia. Oleh itu, kajian ini bertujuan untuk menyiasat hubungan antara kos agensi dan prestasi korporat dikalangan syarikat perkilangan di Malaysia. Kos agensi diukur oleh lima pembolehubah bebas iaitu leveraj, saiz, pertumbuhan, perbelanjaan dan kecekapan. Manakala, prestasi korporat diukur oleh Pulangan atas Ekuiti (ROE). Kajian ini menggunakan data sekunder dari syarikat perkilangan yang tersenarai di Bursa Malaysia. Dari populasi 457 syarikat perkilangan yang tersenarai di Bursa Malaysia, 130 (28%) sampel telah diambil meliputi tempoh 5 tahun dari 2012 hingga 2016. Hubungan antara kos agensi and prestasi korporat dalam kajian ini dianalisis dengan melakukan analisis regresi data panel. Keputusan menunjukkan tiga dari lima proksi agensi kos ketara berkaitan dengan prestasi korporat yang diukur dengan ROE. Tiga pembolehubah tersebut yang ketara berkaitan dengan Pulangan atas Ekuiti (ROE) adalah kecekapan, leveraj dan saiz. Dua pembolehubah yang lain didapati tidak ketara berkaitan dengan prestasi koporat iaitu pertumbuhan syarikat dan perbelanjaan. Oleh itu, kajian ini menunjukkan kos agensi adalah ketara berkaitan dengan prestasi korporat.

Kata kunci: kos agensi, prestasi korporat, keuntungan syarikat, leveraj, saiz, pertumbuhan, perbelanjaan, kecekapan.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

A good corporate governance is important for the economy of a country (Olivera et al., 2016), especially so if it wants to participate in the global capital markets, especially in inducing foreign long-term capital and direct investments. The direct investments also include knowledge transfer, new technologies, professional skills, and others. In general, investors have to be wary of a country's corporate governance structure, especially on its integrity and conformance to international standards of transparency and accountability.

According to Olivera et al. (2016), the corporate governance policy of a country can significantly influence the investment and financing. As such, the corporate governance mechanism has to scrutinize the efficiency of the management allocating the resources in firms. In general, capital needs to be channeled to profitable companies with good corporate governance due to the overall insufficiency in domestic savings, and therefore, corporate governance serves as an effective and objective means to control management in companies and also contributes to efficient allocation of financial resources, which facilitates financial market functions that can further spur the economic development.

In addition, Olivera et al. (2016) also pointed out that there are many mechanisms involved in implementing good corporate governance in a company.

One of them is the representation of the boards of directors on behalf of shareholders to monitor the management effectively. It is imperative to have powerful and systematized board of directors so that it can effectively monitor the management in carrying out their duties to attain the strategic goals of the company. In addition, the compensation management such as bonus is also commonly used internally to ensure management acts not for self-interest but to increase shareholders' wealth. Management compensation is typically in the form of monetary amount such as salary and bonus that are determined based on job performance, as well as in the form of stocks of the company. The compensation in the form of firm's shares of the company may improve the alignment of interests between managers and shareholders because the managers will also have some degree of ownership in the company.

According to Olivera et al. (2016), ownership concentration, which is defined as the percentage of shares owned by shareholders, is another mechanism in corporate governance. It is postulated that a high level of ownership concentration results in an effective monitoring power by investors over firm's managerial decisions. Shareholders with large shareholding may use their voting power to initiate firm actions and decisions in a company such as the election of board members as well as the replacement of non-performing CEO or lackluster management. With this regard, the essential expectation is that substantial shareholding results in effective monitoring of the management by the shareholders, hence lowering the agency cost.

As described by Olivera et al. (2016), good corporate governance encompasses a set of relationships amongst the owners, board of directors, the management, auditors and other stakeholders. These relationships involve various rules and incentives; provide goals and objectives and also determine monitoring performance. Meanwhile, agency cost is a part of corporate governance which is a type internal company expense which comes from the actions of an agent (management) acting on behalf of a principal (owners or shareholders). Agency cost typically arises in the wake of core disruptions, dissatisfactions and inefficiencies such as conflict of interest between shareholders and management.

Many studies have been conducted related to the relationship between corporate governance and corporation financial performance. Studies by Aggarwal (2013), Fauzi and Locke (2012) and Cheng Wu et al. (2010) found that corporate governance and firm performance is significantly positively related. Yegon et al. (2014), Hastori et al. (2015), Kuutol and Agyemang (2015), McKnight (2009), Sajid Gul et al. (2012), Tariq Aziz et al. (2015) and Garanina et al. (2016) focused on the association between corporate governance and agency cost and showed that corporate governance and agency cost are significantly negatively related, implying that higher director ownership reduces the level agency cost.

There are several studies in the emerging countries which examined the relationship between agency cost and corporate performance. Among them are Alfadhl and Alabdullah (2013) and Jabbary et al. (2013) who studied multi

sector companies in Iraq and Iran, respectively, by using expense ratio and asset utilization as proxies of agency cost. The researchers found a significant negative relationship between agency cost and firm performance. Using a sample of listed firms in Nairobi Stock Exchange and asset utilization ratio to proxy agency cost, Salim (2014) found that there is a significant positive relationship between agency cost and profitability. Meanwhile in Indonesia, Enni Savitri (2018) utilized a sample of listed Indonesian manufacturing companies with family ownership (percentage % of share owned by family) where agency cost (expense ratio) is the independent variable and firm performance (ROA) is the dependent variable. It was found that family ownership and agency cost are significantly related with ROA.

In Malaysia, Nur Syuhada (2014) used multi- sector companies to test the relationship between firm performance and agency cost. Studies focusing on manufacturing companies are quite lacking, hence, this study is conducted to fill the gap by examining the relationship between agency cost and financial performance of public-listed manufacturing firms in Malaysia. Manufacturing companies are selected due to the importance of this sector towards the economic growth of Malaysia and many other countries in the world.

1.2 Agency Cost and Firm's Performance

In large businesses, separation of ownership and management is inevitable. Most public listed companies have hundreds of shareholders and it makes it impossible for all shareholders to be involved in the management of the company. Hence, the separation of ownership and management allows shareholders to appoint the management to act on behalf them to manage the company. However, if managers' objectives are different from shareholders' objective, it will create agency problem. These problem come with associated cost normally referred to as agency cost.

The agency theory offers two options to avoid agency problems. The first option is to develop a structure of governance where the contract based on agent's behavior to generate agency costs aimed to monitor and assess the act of the agent (Madison 2014). Madison (2014) found that stewardship structures are advantageous for family-owned companies because they increase steward-like behavior of family employees. Notwithstanding, these structures are damaging because they increase the agent behavior of nonfamily employees. This shows that agency structures based on agent's behavior are essential, but that stewardship structures can only be useful when a large number of family employees are employed. The second option is to develop a governance structure that can facilitate supervision and appraisal of agent behavior, which typically comprises reporting procedure, inclusion of the main board of directors or management personnel (Donaldson and Davis, 1991).

Agency cost of a firm can be indirectly gauged by several ratios. Among them are utilization ratio and expense ratio. Total assets turnover is a proxy for utilization ratio that measures agency cost of a company. This ratio is used to determine management efficiency in utilizing the assets of the company. According to Faisal (2005), higher the utilization ratio indicates that the assets are used more productively to create value to the shareholders. Meanwhile, another proxy for agency cost, the expense ratio, reflects discretionary management expenses using company resources. Faisal (2005) pointed out that higher management expenses result in higher agency cost.

Higher agency cost indicates poor management of operational cost, which leads to low operating income and is possibly due to fraudulent management of the operating costs. It can increase the agency costs and adversely affects company's profitability (Layyinaturrobaniyah & Fitriyana 2014).

According to Kangarlouei et al. (2012), ROA and ROE are the most frequently used financial ratios to ascertain firm's management overall effectiveness. ROA indicates how well a firm's management is utilizing the assets to create income. Meanwhile, ROE is a profitability ratio that shows the amount of net income a company records as a percentage of owner's equity.

Madaseh (2015) pointed out that, based on literature review, researchers and investors commonly used ROA and ROE to measure company performance. The study by Ang et al. (2000) explained that the commonly used financial measures of performance are ROA, gross profit, stock market return, total assets, revenue growth and earnings per share. According to Simerly and Mingfang (2000), measuring company performance has been major challenge for practitioners and scholars as well.

1.3 Problem statement

In general, agency problem occurs due to the conflicting objectives between managers and shareholders. This problem come with associated cost normally referred to as agency cost. This cost arises because shareholders are constantly trying to keep the managers focused on pursuing shareholders interest, with the hope that wealth will be increased accordingly. When a firm has debt, management is attracted to engage in selfish strategies, which results in costly agency cost on the firm, and lower the market value of the firm.

According to Mojtahedzadeh (2010), agency costs represent a big portion of firm's total costs and shareholders try to ensure the integrity of management activities and by increasing the percentage of management ownership so that agency costs will be reduced. Compared to publicly traded firms, 100 per cent managers-owned firms have almost zero agency cost. On the other hand, other

extreme are 0 per cent managers-owned. In between are companies where the managers own a certain percentage of the firm's total equity.

Separation of shareholders and management creates a conflict if managers act to their self-interest and this leads to the agency problem. According to Vilapour and Khoram (2010), when there is separation between ownership and management on a firm, there is the potential that managers make decisions that are aligned to their interests instead of the shareholders'. Almost every contractual relationship has agency problem where the agent promises to perform according to the terms stipulated by the principal. The main problem here is to ensure that the agent perform as promised.

Agency problem does not only occur in the relationship between owners and managers. According to Armour et al. (2009), there are three generic agency problems that may occur in business organizations. Firstly, the agency problem that occurs due to the conflict between shareholders and managers. The problem occurs when the shareholders want to assure that the managers are in-line with the interest of the shareholders instead of carrying out their own personal interests. Secondly, the problem that occurs due to the conflict between majority shareholders and the minority shareholders. In this case, majority shareholders act as the agents while the minority shareholders act as the principals. Problem occurs when majority shareholders are pursuing their self-interests at the expense of the minority stockholders. Thirdly, the problem that occurs due to conflicts

between the management and other stakeholders such as the shareholders, employees, customers and creditors. In this case, the management as agent may not behave accordingly to other principals such as exploiting workers, expropriating creditors and misleading customers.

In order to reduce agency cost, the law can play an important role. For example, disclosure requirement for agents can be enhances and also the principal can enable legal actions being taken towards dishonest or negligent agents (Armour et al., 2009). Furthermore, foreign investors, who are usually minority shareholders, are induced to drive investment of unrelated businesses in the group in order to reduce agency cost. In emerging countries, it is not unusual that many businesses have unrelated diversification due to political, cultural and economic condition. Usually, both principals and agents are interested to reduce agency cost in any business transaction. Therefore, an effective corporate governance structure has to be established to ensure that creditors and shareholders are effectively protected and also to ensure their investment return. In addition, it also enables to promote the condusive environment to the sustainable growth and efficiency of the corporate sector.

Several studies done by previous researchers have examined the relationship between agency cost and other variables. For example, Atumwa (2013), determined whether there is a relationship between agency cost and leverage.

Meanwhile, Yegon et al. (2014), examined the relationship between agency cost and corporate governance.

Alfadhl and Alabdullah (2013) and Jabbary et al. (2013) focused on the relationship between agency cost and firm performance in Iraq and Iran, respectively, and they used expense ratio and asset turnover ratio as proxies of agency cost. Salim Manal (2012) utilized asset utilization ratio as proxy of agency cost in examining the relationship between agency cost and firm performance. Meanwhile, Enni Savitri (2018) examined the relationship between agency cost and firm performance in Indonesia and used selling, general and administration ratio (SG&A) to measure agency cost.

Many studies on corporate governance, specifically on the monitoring role of agency cost, have been conducted in different contexts, and agency cost has been proxied by efficiency (assets utilization, assets turnover), expense (SG&A), leverage, company's growth and company's size. In general, most of them are found to be significant in determining financial performance which is measured by the return on equity (ROE).

1.4 Research Questions

Based on the problem statement discussed earlier, the research questions of the study are as follows.

1. Is there any significant relationship between Return on Equity (ROE) and leverage for manufacturing companies in Malaysia?

2. Is there any significant relationship between ROE and size for manufacturing companies in Malaysia?

3. Is there any significant relationship between ROE and company's growth for manufacturing companies in Malaysia?

4. Is there any significant relationship between ROE and expenses for manufacturing companies in Malaysia?

5. Is there any significant relationship between ROE and efficiency for manufacturing companies in Malaysia?

1.5 Research Objectives

Based on the research questions, the research objectives developed for this study are as follows.

1. To examine the relationship between Return on Equity (ROE) and leverage for manufacturing companies in Malaysia.

2. To investigate the relationship between ROE and size for manufacturing companies in Malaysia.

3. To examine the relationship between ROE and company's growth for manufacturing companies in Malaysia.

4. To investigate the relationship between ROE and expenses for manufacturing companies in Malaysia.

5. To examine the relationship between ROE and efficiency for manufacturing companies in Malaysia.

1.6 Significance of the Study

This study is important from the practical and theoretical point of view. Theoretical importance comes from demonstrating new findings on the relationship between agency cost, proxied by several variables, and firm performance.

The findings are also expected to have practical contributions especially to shareholders, managers and policy makers specifically on formulating mechanisms to reduce agency cost and improve financial performance thus increasing the value of the company in Malaysia, particularly the public-listed manufacturing firms.

Although many studies related to agency cost have been done in Malaysia, hardly any study examined the relationship between agency cost and corporate performance in the public-listed manufacturing companies. Manufacturing sector is chosen in this study due to the importance of the sector towards the growth of the nation's economy thus can aid investors in making investment decisions.

1.7 Organization of the Dissertation

This dissertation contains five chapters and is organized as follows. Chapter one presents the introduction of the study, and chapter two discusses the underlying theories and also the relevant literature related to the problem statement of this study.

Chapter three outlines the methodology, including the process of data collection, sampling procedure, measurement of variables and data analysis. Chapter four presents the findings and analysis on what have been discussed in chapter three. Finally, chapter five discusses the conclusion and implications of the study. Recommendations for further studies are also provided.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is to provides insights about agency cost and corporate performance. It discusses the basic concepts and definitions which include prior findings of the studies on agency costs and corporate performance as well as the various proxies of agency costs.

2.2 Corporate Governance and Corporate Performance

Corporate governance is defined as a set of process, principles and systems that govern a company. It provides the guidelines of how a company can be controlled and guided to achieve value-added objectives and goals that can benefit the shareholders, board of directors, management, employees, suppliers, customers, and also the community. Efficient allocation of resources will increase corporate performance or profitability. To ensure efficient allocation of resources, the management should be monitored effectively. There are many mechanisms in order to implement corporate governance in a company. One of the most common mechanisms of corporate governance is the presence of the boards of directors on behalf of shareholders to effectively monitor the management. Organized and strong board of directors is very important for creating effective oversight of the management. Meanwhile, the concentration of ownership is another mechanism in corporate governance, whereby a higher

level of ownership concentration can result in greater monitoring by the stockholders towards the managers.

Of late, many researchers are interested to analyze the association between corporate governance and corporate performance, but the findings obtained from the studies have been mixed and rather inconclusive. For example, in Aggarwal (2013), corporate governance variables were regressed against the financial performance of Indian companies using a sample of 20 public-listed companies and found that they are positively related. This is similar to the study by Brown and Caylor (2004) which discovered that companies with better governance record higher profits, are more valuable and pay out higher dividends to their stockholders.

Cheng Wu et al. (2010) found that firm performance has significant and negative relationship with corporate governance proxies. They also found that firm performance has positive relationship with board independence and insider ownership.

In Ghana, Owusu and Weir (2016) found that Ghanaian corporate governance index (GCGI) and firm performance are significantly and positively related, implying that in general, most companies complied with the '2003 Ghanaian Corporate Governance Code'. In Malaysia, Ramachandra (2017) used 113 listed companies in Malaysia from 2008 to 2013 and used corporate governance index

of Malaysia (MCGI) as a proxy of corporate governance and found that it has positive relationship with firm performance

In another angle, Vu and Nguyen (2017) used the dual role CEO, board size and board independence as proxies of corporate governance and included 137 public-listed Singaporean companies from 2013 to 2016 to investigate the relationship between corporate governance and financial performance. The findings show that board size and firm performance are negatively related. However, the relationship between board independence and CEO duality with firm performance is not significant.

Zaid Saidat et al. (2019) studied non-family-owned and family-owned companies to ascertain the relationship between corporate governance and financial performance of non-financial companies listed on Amman Security Exchange (ASE) from 2009 to 2015. They used size of board, CEO duality and number of independent directors to measure corporate governance and return on assets and Tobin's Q as indicators of financial performance. The findings show that board size has negative relationship with the performance of family-owned companies but has no significant association with financial performance. There is a strong association between corporate performance and number of independent directors in family-owned firms. The findings also indicate that ownership concentration has a significant association with financial performance; while in family-owned firms, it has a negative and significant association with Tobin's Q.

2.3 Agency Cost

Agency cost is a part of corporate governance which is a type internal company expense which comes from the actions of an agent acting on behalf of a principal. Agency cost typically arises in the wake of core disruptions, dissatisfactions and inefficiencies such as conflict of interest between shareholders and management.

The impact of agency cost on corporate governance has been of considerable interest to many academicians, practitioners and also businesses. Yegon et al. (2014) used several corporate governance proxies and regressed them against asset utilization, a proxy of agency cost. They sampled 9 service companies based on market capitalization from Nairobi Security Exchange (NSE) from 2008 to 2012 and found that director and institutional ownership, as well as separation of CEO and chairman, are negatively related with agency cost. Meanwhile, board size and board independence are positively related with agency cost.

Florackis (2008) used 897 firms of publicly traded UK firms as a sample for his study. He used asset turnover and expense ratio to measure agency cost in a regression against several corporate governance variables. The findings show that companies' debt can act as a significant corporate governance mechanism. In addition, managerial ownership, managerial compensation and ownership concentration are significantly related with agency costs.

With a sample of 54 public-listed companies in Indonesia, Hastori et al. (2015) investigated the influence of agency cost on agro-industrial firms. They used general and administration expenses to sales (SG&A) as a proxy of agency cost and ownership concentration, board of directors, board of commissioners, independent commissioners and audit committee as proxies of corporate governance. They found that agency costs are significantly related to dividend payout and leverage as well as several good governance mechanisms. Kuutol and Agyemang (2015) used board size, board independence and board gender diversity as proxies for corporate governance and asset turnover as a measure of agency cost to examine the influence of board characteristics on agency cost of public-listed firms in Ghana from 2005 to 2013. The study found that board size and board independence are significantly and negatively related to agency cost. Nevertheless, the relationship between board gender diversity and agency cost is positive. Furthermore, it was found that boards of the listed companies th dominated by male directors are more effective in lessening the agency cost.

McKnight and Weir (2009) examined the effect of governance and ownership variables on agency cost. They used UK non-financial firms incorporated in FTSE 350 Share index Companies as their samples and used asset turnover and growth as proxies of agency cost, while board structures, nomination committee, board ownership and debt structure are used to measure corporate governance. They found that in general, the changes in the structure of the board have not

influenced the agency costs. As a result, they suggested several mechanisms that are in-line with firm value maximization. They also found that having a nomination committee in the board increases agency costs, indicating that there are costs related with certain governance mechanisms. Increasing board ownership and increasing debt also help to reduce agency costs.

Sajid et al. (2012) studied a sample of 50 firms listed on Karachi Stock Exchange (KSE) and used board size, CEO duality, independent directors, remuneration structure, director ownership and institutional ownership as proxies of corporate governance, while asset utilization ratio was used to measure agency cost. The findings showed that director and institutional ownership are negatively related with agency cost, but board size has a positive relationship with agency cost. In addition, board independence is positively related with asset utilization ratio, while the separation of the post of CEO and chairman and higher salary reduce the agency cost.

In another study, Aziz et al. (2015) studied 100 public-listed firms in Pakistan for the period of 2007 to 2011. They used asset turnover (asset utilization) and general and administration expenses to sale (SG&A) ratio to measure agency cost, and regressed it with several corporate governance variables. The findings show that director and institutional ownership have negative relationship with agency cost, while the size of board of directors records positive association with agency cost. Board independence is positively related with asset utilization ratio,

and CEO and chairman separation and also remuneration are negatively associated with agency cost.

Garanina et al. (2016) examined the relationship between corporate governance and agency cost in USA, Russia and Norway by using the data of 243 companies, 196 Russian companies and 175 Norwegian companies. They found that board size has positive influence on agency costs. The percentage of female board members has a minimal positive effect in US companies, negatively related to agency costs in the Norwegian sample and is not significant in the Russian market. The authors also discovered that large Russian and US companies in the sample of the study have lower agency costs.

Ochieng (2013) examined the influence of governance mechanism on firm agency cost by examining the impact of corporate governance in minimizing agency cost of 34 listed firms in Nigeria for the period of 2003 to 2013. The researcher used asset utilization ratio as a proxy of agency cost, and audit committee, nomination committee, CEO duality, non-executive board members, ownership by board and institutional ownership were used as proxies of corporate governance. The finding shows that t having audit committee and non-executive board members reduces agency cost. However, the presence of nomination committee, CEO duality, institutional ownership and board ownership do not significantly influence the agency cost.

2.4 Proxies of Agency Cost

There are many proxies of agency cost that researchers used in their studies. The most used proxies of agency cost are assets utilization (efficiency) and expense. In this study, five proxies for agency cost are used, namely, leverage, firm size, company growth, efficiency and expense. The literature related to the proxies of agency cost selected is discussed in the following sections.

2.4.1 Leverage and Agency Cost

The agency theory stated that debt can reduce equity agency cost because debt reduces the free cash flow of a firm, limiting manager's discretion to spend unnecessarily and thus is able to align the interests of managers and stockholders. The relationship between leverage and agency cost has been studied quite extensively in corporate finance research. In Atumwa (2013), the findings show that leverage is negatively related with agency cost based on the sample of60 listed companies in Nigeria from January 2008 to December 2011

Li and Cui (2003) used 211 listed companies in China from 1999 to 2001. For agency cost, they used asset turnover ratio and for leverage, debt to asset ratio was used. The findings show debt decreases agency costs.

Nazir et al. (2012) used a sample of 265 listed companies in Pakistan for the period of 2004 to 2009, and also found that leverage, proxied by total debt and short term debt ratios, has negative relationship with agency cost.

In another study, Zakaria et al. (2016utilized a sample of 53 listed Malaysian construction firms with total assets more than RM300 million for the period of 2007 until 2012. They used asset turnover as a proxy for agency cost and debt ratio and debt to equity ratio to measure leverage. The results show that when the acquisition of company assets is financed by debt, the debt holders are more concerned with interest and principal payments. This limits the company from using funds to monitor agency problems. However, it is noted that an increase in the company cost to monitor agency problem positively affects the company's debt relative to equity. The findings also revealed that when the company's profit increase, the cost to monitor agency cost tends to increase.

Zheng (2013) included 775 firms listed on Shanghai and Shenzhen stock markets for the period of 2010 to 2012 in the sample of his study and found that debt is negatively related with agency costs. The other variables are not significantly related with each other.

2.4.2 Leverage and corporate performance

The research on optimal capital structure is still unfolding as many related studies are being conducted by researchers (Gill et al., 2011). In the static trade-off theory of capital structure, profitable companies are expected to have a higher leverage ratio. In a study done by Akeem et al. (2014) on Nigerian manufacturing firms from 2003 to 2012, it was found that capital structure has a negative relationship with firm performance and the researchers proposed that

companies should utilize equity more compared to debt because debt can increase firm's value through the tax savings or tax deductibility component.

Abeywardhana (2015) looked at n SME companies in the UK for the period of 1998 to 2008 to investigate the association between leverage and profitability. The findings reveal that there is a significant negative relationship between capital structure and profitability. Long-term debt to total assets ratio has negative association with profitability and this shows that SMEs do not like to use more equity for fear of losing control of the company.

In another study, Habib et al. (2016) used panel data of listed firms in Pakistan for the period of 2003 to 2012. ROA was used to measure performance, whereas short term debt to asset, long term debt to asset, and total debt to asset are used as measures for leverage. The findings show that short term debt, long term debt and total debt are negatively related with ROA. However, in another study, Idode et al. (2014) found that debt is positively related with profitability among listed Nigerian firms from 2008 to 2012.

In Javed et al. (2015), the sample consists of 154 Pakistani firms from 2006 to 2011 and the researchers found that debt relationship with profitability.. Meanwhile, Muscettola (2016) used a sample of 7,370 Italian SMEs for the period from 2006 to 2010 and the findings show that profitability is negatively influenced by debt. In another study, based on a sample of 50 Nigerian listed

companies for the period of 1990 to 2004, Salawu (2009) found that profitability has positive relationship with short-term debt and negative association with long-term debt.

Hence, this study proposes the following hypothesis:

H_{1a}: Corporate performance is positively related with leverage

2.4.3 Firm's Size and corporate performance

The relationship between firm's size and profitability has been examined quite thoroughly in finance. For example, Niresh and Velnampy (2014) utilized a sample of 15 manufacturing companies listed in Colombo Stock Exchange (CSE) for a period of 2008 to 2012 to examine the relationship between firm size and profitability, where ROA and net profit were used for profitability and total asset and total sales were used for size. The results show that as f firm size and profitability are not significantly related.

Pervan and Visic (2012) used a sample of 2,050 Croatian manufacturing firms from 2002 to 2010 to investigate the relationship between company size and firm performance. The findings show that size has a weak positive relationship with profitability, whereby larger companies have the ability to charge higher prices on their products or services and therefore record higher income. An explanation of this weak relationship can be attributed to the separation of ownership and

management in corporations that transfer manager's priority from profit maximization to managerial utility maximization.

Abbasi and Malik (2015) found that firm size has moderating effect on the association between firm growth and firm performance. Meanwhile, in Ghana, Abiodun (2013) found that firm size is positively related with profitability, which is measured by ROA. In another study, Inyiama and Victoria (2014) investigated the impact of firm size on financial performance of Nigeria brewery companies from 2003 to 2013. Earnings per share were used to measure performance and total asset was used to measure firm size. Similarly, the results show that firm size has positive effect on firm performance.

In another study, Mule et al. (2015) selected 53 companies listed on Nairobi Securities Exchange (NSE) from 2010 to 2014 and found that firm size is significantly and positively related with ROE. The findings also show that ownership concentration is positively associated with profitability. In addition, Vinasithamby (2015) also found that company size is positively related to profitability, as measured by ROA.

Ramasamy et al. (2005) selected 30 plantation companies listed on Bursa Malaysia for the period of 2000 to 2003 and the regression results show that firm size is negatively related with profitability. This implies that bigger companies are more complex and thus difficult to manage, resulting in inefficiencies and also decrease in profitability.

Hence, the following hypothesis is developed:

H_{a2}: Corporate performance is positively related with firm size

2.4.4 Company growth and corporate performance

High growth company requires more monitoring because the managers are more prone to take higher because large amount of assets is easier to obtain and this resulting in higher agency cost. Results obtained by previous researchers pertaining to the relationship between company growth and corporate performance have been mixed. For example, Moeinfar and Mousavi (2011) used a sample of 162 companies in Tehran for the period of 2006 to 2009 and found that growth rate and ROA are significantly and positively related.

In another study, Ting et al. (2014) studied 240 Malaysian listed companies from 2001 to 2010 by using sales growth, total assets growth, fixed assets growth and employment growth as proxies of organizational growth while ROA and ROE were used as proxies of profitability. The results indicated that firm's growth is positively associated with profitability. Yoo and Kim (2015) used sales growth, total assets growth and employment growth as proxies of firm growth. They studied 264 small and medium size construction firms for the period 2000 to 2014 in Korea and also found that growth is positively related with profitability. Similarly, the study by Tingler (2015) where 50 Western European and Northern

America chemical companies for the period from 2003 to 2012 were chosen as the sample show that firm growth is positively related with performance. This is also supported by S. Coban (2014) who used a sample of 137 listed manufacturing companies in Turkey for the period 1997 to 2012 and firm growth is measured by sales growth. The findings show similar result whereby there firm growth is positively related with profitability.

Meanwhile, a study by Loi and Khan (2012) used 13,552 Belgian companies for the period of 2001 to 2006 in the sample and showed that profitability is not significantly influenced by company growth. Fitzsimmons (2005) who used sales growth and employment growth as proxies of firm growth discovered that the volatility of growth rate is consistently high and its relationship with profitability is not straightforward.

Hence, this study proposes the following hypothesis:

H_{a3}: Corporate performance is positively related with company growth

2.4.5 Expense and corporate performance

Expense ratio formula is operating expense divided by annual sales. Based on Ang et al. (2000), expense this ratio can be regarded to directly measure agency cost since it effectively measures how well the management is managing the operating costs. Boldeanu and Pugna (2014) used a sample of 23 pharmaceutical

firms from 2010 to 2013 to study the relationship between ROE and expenses and found that they are negatively related.

Johnson (2016) chose a sample of 38,737 companies for the period of 1990 to 2011 and discovered that change in expenses (SG&A) provides information change in profitability, implying that expenses and firm performance are negatively related. Furthermore, the study by Okwo (2012) also shows that expense ratio is significantly and negatively related with profitability.

Similar findings were also found in Tronconi et al. (2011) who chose a sample of 828 European firms from 2000 to 2006, whereby expense ratio is negatively related with ROA. In addition, Wang and Lu (2014) examined 1355 companies in Taiwan over the period of 2001 to 2012 and found that organizational capital which proxied by SG&A, has a negative effect on profitability.

Hence, this study proposes the following hypothesis:

H_{a4}: Corporate performance is negatively related with expenses

2.4.6 Efficiency and corporate performance

In Ang et al. (2000), agency cost was measured by asset utilization ratio (efficiency), which is calculated as annual sales divided by total assets and it measures how effective the management is in deploying its assets.

Jabbary et al. (2013) studied the impact of efficiency (asset turnover) on performance and chose a sample of 73 Iranian listed firms from 2006 to 2010. The results show that ROA and efficiency is positively related. Furthermore, Santosuosso (2014) studied 215 Italian listed companies for the period of 2004 to 2013 and found significant positive association between efficiency (proxied by asset turnover, inventory turnover and account receivable turnover) and firm performance (ROA).

Sari et al. (2014) used asset turnover to measure efficiency and studied 9 Indonesian pharmaceutical firms for the period of 2006 to 2010 and found that efficiency (asset turnover) significantly influences return on asset (ROA). Sarwat et al. (2017) also found that assets turnover ratio (efficiency) is significantly and positively related with ROA.

Hence, this study proposes the following hypothesis:

H_{a5}: Corporate performance is positively related with efficiency

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the conceptual framework, hypotheses of the study and the research design of the study.

3.2 Conceptual Framework

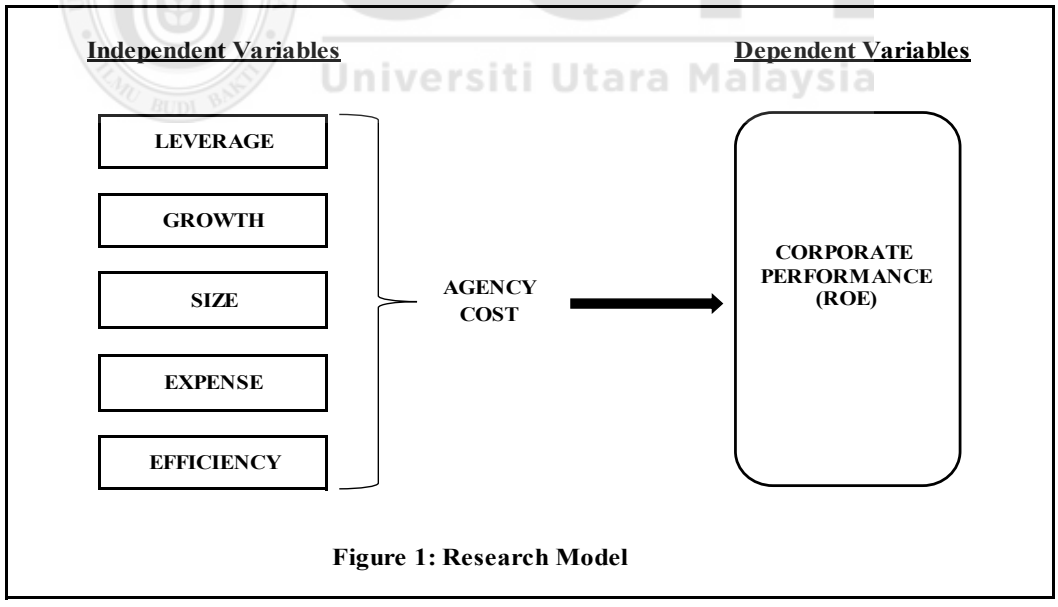

Figure 1: Research Model

3.3 Hypotheses of Study

Based on literature review regarding the relationship between agency cost and corporate performance, these are the hypotheses for this study.

H_{1a}: Corporate performance is positively related with leverage

H_{2a}: Corporate performance is positively related with firm size

H_{3a}: Corporate performance is positively related with company growth

H_{4a}: Corporate performance is negatively related with expenses

H_{5a}: Corporate performance is positively related with efficiency

As there is no direct measurement for agency costs, this study uses proxies based on earlier studies. For corporate performance or profitability, Return on Equity (ROE) is employed.

3.4 Research Design

According to Dooley (2007), a research design is an outline that is used to give answer to research problem. The data in this study was collected from Bursa Malaysia, covering the period of 2012 to 2016. Regression analysis is considered appropriate in this study to examine the relationship between the dependent

variable (ROE) and the independent variables (leverage, firm's growth, firm's size, efficiency and expense).

3.5 Data Collection

This study utilized secondary data from companies listed in Bursa Malaysia. Secondary data ensure precision and accuracy of data other than via questionnaires and interviews (Sekaran 1992 and Yaacob 2011).

The secondary data collected were revenue, expenses, assets, liabilities and equity. They are credible and reliable because they were audited by professional external auditors.

The population of this study covers manufacturing companies listed in Bursa Malaysia from 2011 to 2016. Based on Choong (2016), there are 11 sectors classified in the manufacturing industry, according to the Malaysian Investment Development Authority (MIDA) and are shown in Table 3.5.

Table 3.5

Classifications of manufacturing sectors according to MIDA

No	Manufacturing sector	No of firm
1	Non-metalic mineral industry	55
2	Aerospace	1
3	Textiles and textile product	36
4	Basic metal products	33
5	Electrical and electronic	46
6	Engineering support	9
7	Food & sustainable resources	105
8	Machinery and equipment	103
9	Medical devices	13
10	Petrochemical	48
11	Pharmaceuticals	8
	Total	457

Source: Adopted from Malaysian Investment Development Authority (MIDA)

In 2016, the total listed firms in Bursa Malaysia are 904. After excluding the financial sectors, there are 813 listed companies in Bursa Malaysia. Financial sector companies are excluded from the sample because they have different regulatory framework and annual report presentation compared to other companies (Yaacob, 2011). Out of the 813 listed companies, 457 companies are identified based on MIDA classification as shown in table 3.4 above. From the 457 manufacturing companies, 130 (28%) companies are selected to be in the

sample. Furthermore, companies with incomplete data from 2012 to 2016 were also taken out

Finally, 130 firms were selected to be included in the sample.

3.6 Analysis of Data

This study used descriptive analysis, correlation analysis, diagnostic test and multiple linear regression analysis to analyzing the data and to determine relationship between agency cost and corporate performance.

3.6.1 Descriptive Analysis

Descriptive analysis is analysis that help us to simplify the large number of data. Descriptive analysis is very important because the data can be present in meaningful way to allow simpler interpretation which we can get information about distribution or spread of the data.

3.6.2 Correlation analysis

Correlation analysis is analysis to examine whether multicollinearity exist among variables or not. Multicollinearity exist if the correlation value between variable exceed 0.8. According to Hair et al. (2010), multicollinearity is a type of disturbance in the data, which may distort the result of regression. And if

multicollinearity present in the data, the conclusion made about the data may not be reliable.

3.6.3 Diagnostic Test

In this study, four type of diagnostic test have been used which is normality test, heteroscedasticity test, multicollinearity test and stationery test. Normality test is conducted to determine whether or not the data are normally distributed. Heteroscedasticity test is test to see whether size of error term differs across values independent variables. Multicollinearity test is test to see whether multicollinearity test exist among variables by find the "Variance Inflation Factor" (VIF) by using eviews system. And Stationery test is test to see whether the variables is stationery of not. Stationery series is a flat series without trend whereby the mean and variance are constant over time with no periodic fluctuation.

3.6.4 Multiple Linear Regression Analysis

Multiple linear regression analysis is a type of analysis that analyzing relationship among multiple variables. This type of analysis is to see the relationship between a dependent variable and more dependent variables whether the relationship is significant or not and positive or negative relationship. In this study dependent variable is corporate performance (ROE) and independent variable is agency cost measured by leverage, growth, size, expense and efficiency.

3.7 Operational Definitions

3.7.1 Leverage

Leverage refers the level of borrowings or debt a company has in financing its assets. By definition, it is the ratio of total debt to total assets. Accordingly, the higher leverage of a company, the greater is its financial risk.

3.7.2 Firm Growth

A growth firm is a company that is growing relatively faster than its peers or the general economy. There are many ways to determine firm's growth, but generally a growth firm records an increase in annual revenue more than the industry average over a sustained period. Growth firms typically have innovative products or services that draw in more consumers. In this study, growth rate is calculated as the total assets for current year minus the total assets in the previous year, divided by current year total assets.

3.7.3 Firm's size

In any industry, firms have different sizes, depending on their total sales and total assets, which influence the sizes of operating costs. Measures of firm size in previoius empirical studies include total assets, number of employees, total sales and market capitalization. Based on the argument made by Trigueiros (1995) this study used the natural log (ln) of total assets as a measure of company size.

3.7.4 Efficiency

Efficiency ratio evaluates the ability of a firm to manage its assets and liabilities efficiently. The ratio includes inventory turnover ratio, receivable turnover ratio, accounts payable to sales ratio and few other working capital ratios. Usually, the ratio is used in comparing with the other companies in same industry in order to identify companies that have better management team compared to the others. In this study, asset turnover ratio is used to determine efficiency of a firm.

3.7.5 Expense Ratio

Expense ratio evaluates the level or proportion of assets used for administrative and other operating expenses. This ratio is calculated by dividing administration and other operating expenses by average dollar value of a company's assets. Operating expenses lower the assets and the return to a fund's investor. In this

study, administrative and other operating expenses divided by sales ratio is used to measure expense ratio.

3.7.6 Corporate Performance

Corporate performance is a measure to assess of how good a company performs its objectives as stipulated by the shareholders. In this study corporate performance is measure by Return on Euity (ROE). It is calculated as net income or net loss divided by total equity of the company.

3.8 Data Analysis

Multiple linear regression analysis, correlation analysis and descriptive analysis are used to determine the relationship between proxies of agency costs, namely, leverage, firm's growth, firm's size, efficiency and expense ratio, and corporate performance. Eviews statistical package is used to analyze the data.

3.8.1 Analytical Model

The statistical analysis is to examine if there is a significant relationship between proxies of agency cost (leverage, growth, firm's size, efficiency and expense) and corporate performance. Hence, a multiple regression model or equation is developed to analyze the relationship between agency cost and corporate performance as follows.

ROE = α + β1 LEVERAGE + β2 GROWTH + β3 SIZE + β4 EFFICIENCY - β5 EXPENSE + e (error term)

Where,

ROE: Return on Equity (ROE) measures the profitability of a company relative to its equity, and it is an indicator of how effective the management uses the equity to create wealth for the shareholders. The ROE in this study is measured by net income divided by the total equity of the company.

$$ROE = \frac{\text{Net Income}}{\text{Total equity}} \times 100$$

LEVERAGE: A leverage ratio measures the level of debt in a company. It is calculated as non-current liabilities plus current liabilities divided by total assets of the company.

$$\text{Leverage} = \frac{\text{Non-current liabilities} + \text{Current liabilities}}{\text{Total assets}} \times 100$$

GROWTH: In this study firm's growth is calculated as total assets in current year minus total assets in previous year divided by total assets in previous year.

$$\text{Growth} = \frac{(\text{Total assets current year} - \text{Total assets previous year})}{} \times 100$$

Total assets previous year

FIRM SIZE: Firm size can be measured with various indicators such as total assets, sales and market capitalization. In this research, firm size is calculated as the book value of total assets and the formula is:

Firm size = Log (ln) Total assets

EFFICIENCY: Efficiency ratio is a simple and direct measure of a firm's ability to convert its resources into sales or revenue. A decline in the efficiency ratio shows either increasing costs or decreasing revenues. The formula of efficiency in this study is:

$$\text{Efficiency} = \frac{\text{Revenue}}{\text{Total assets}}$$

EXPENSE RATIO: Expense ratio evaluates the level of administrative and other operating expenses with respect to the revenue of a company. The formula of expense ratio used in this study as follow:

$$\text{Expense ratio} = \frac{\text{Administrative expenses + Other operating expenses}}{\text{Revenue}}$$

3.9 Techniques of Data Analysis

In this study, descriptive analysis, correlation analysis and multiple regression analysis are used to explain the relationship between agency costs and corporate performance of the companies.

3.10 Summary

This chapter outlines the methodology used for this research and has discussed the research framework, hypotheses of the study and also the research design. The sampling procedure is explained and the variables in the regression model are elaborated.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter discusses the results of the regression conducted in the study between ROE and agency costs variables.

4.2 Descriptive Analysis

	LEVERAGE	SIZE	GROWTH	EXPENSE	EFFICIENCY	ROE
Mean	0.317872	19.36783	0.119529	0.220807	0.970269	0.057497
Median	0.291938	19.29813	0.043889	0.160499	0.918093	0.069546
Maximum	2.312677	23.84575	36.54977	6.342474	3.206369	5.900444
Minimum	0.01546	15.92366	-0.748525	0.01203	0.0338	-13.1028
Std. Dev.	0.191629	1.125312	1.442025	0.308482	0.46963	0.58754
Skewness	2.080316	0.593518	24.86723	12.94187	1.432771	-15.8007
Kurtosis	19.93479	3.763296	628.6146	243.9881	6.793848	403.6444
Jarque-Bera	8235.99	53.94114	10667237	1591017	612.2084	4374354
Probability	0	0	0	0	0	0

Table 4.1 – Descriptive analysis among variable.

From the table 4.1, a total 650 data from each variable were studied for 5-year period from 2012 to 2016. The table shows that from total observation of 650 of variable leverage, the mean is 0.317872 with standard deviation 0.191629. The skewness is a measure the symmetry of the data whether the data fit into normal bell-curve. Skewness with near to 0 is more symmetry and from the table shows that skewness of leverage stands at 2.080316 which is not symmetrically bell-shaped.

In other hand kurtosis is a measure of whether the data are heavy-tailed or light-tailed or a measure of the peakness or flattness of a curve. The distribution is called normal if kurtosis stand at 3. From the table shows that kurtosis for leverage stand at 19.93479. This shows that leverage have peak distribution (19.93 > 3).

Meanwhile for variable size which was proxied by natural log (ln) of total asset from the table shows that the value for mean is 19.36783 with standard deviation 1.125312. The value of skewness for variable size stand at 0.593518 shows that the data nearly symmetry due to the skewness value near to 0 and for kurtosis the value is 3.763296 show that the data have normal tail due to the kurtosis value near to 3.

For variable growth in the table show that mean value stands at 0.119529 with standard deviation 1.442025. The value of skewness is 24.86723 which is not symmetry due to not near to 0 and the value of kurtosis stand at 628.6146 show that the distribution data for growth have peak distribution due to 628.6146 > 3. This is because as per table show that the minimum value is -0.748525 and maximum value is 36.54977 which the gap is very high.

While for expense from the table show that the average value is 0.220807 with standard deviation 0.308482. The value of skewness stands at 12.94187 show that the data distribution not symmetry into normal bell-curve and the value of kurtosis is 243.9881 shows that the data have peak-tail due to more than 3. The value of kurtosis is high because of the gap between data is high which is as per table the value of minimum is 0.01203 and the value of maximum is 6.342474.

Finally, the mean efficiency which is proxied by sale divide by total assets is 0.970629 with standard deviation 0.46963. The value of skewness is 1.4332771

which is near to 0 describe that the distribution of the data near symmetry and the value of kurtosis is 6.793848 show the data have peak-tail due to more than 3. The value of kurtosis is high due to gap between minimum value and maximum value is high which is stand at 0.0338 and 3.206369 respectively.

4.3 Correlation analysis

Pearson Correlation Matrix
Sample: 1 650
Included observations: 650

Correlation / Probability	LEVERAGE	SIZE	COMPANY GROWTH	EXPENSE	EFFICEINCY	ROE
LEVERAGE	1.000000					

SIZE	0.075573	1.000000				
	0.0541	-----				
COMPANY GROWTH	0.065004	0.072451	1.000000			
	0.0978	0.0649	-----			
EXPENSE	0.006394	-0.152033*	-0.022564	1.000000		
	0.8707	0.0001	0.5658	-----		
EFFICIENCY	0.285375*	0.039754	-0.047540	-0.197966*	1.000000	
	0.0000	0.3115	0.2261	0.0000	-----	
ROE	-0.113339*	0.134777*	0.010873	-0.007738	0.049030	1.000000
	0.0038	0.0006	0.7820	0.8439	0.2119	-----

Table 4.2 – Pearson Correlation Matrix among variables

Pearson Correlation analysis is used to examine whether multicollinearity exists among regressor or not. Correlation matrix is a method to detecting multicollenearity. Table 4.2 shows that there is no correlation exceeds 0.8 showing that multicollinearity does not exist among the independent variables in this study (Kennedy, 1998; Anderson et al., 1999; Brayman and Cramer, 2001).

Based on table 4. 2, ROE has positive correlation with firm's size, company growth and efficiency. Positive correlated means that every unit increase of

independent variables which is firm's size, company growth and efficiency is predicted to be accompanied by increase in ROE by 0.13477, 0.010873 and 0.049030 respectively. For variables company growth and efficiency, the relationship with ROE is weak or not significant due to correlation value is 0.010873 or 1.08% and 0.049030 or 4.90% respectively.

Meanwhile, ROE has negative relationship with leverage and expense. This means that every unit increase in independent variables which is leverage and expense is predicted to be accompanied by decrease in ROE by 0.113339 and 0.007738. For expense, the relationship with ROE is not significant due to correlation value is 0.007738 or 0.77%.

This result is in line to the study with Niresh and Velnampy (2014) which found a weak positive relationship between firm's size and ROA but not in-line with Muscettola (2016) which concluded that debt is negatively related with ROA.

Leverage and efficiency recorded the highest correlation of 0.2853, showing that when leverage moves or changes by 1 unit, efficiency will change by 0.285375 or 28.54%. This result in line to the study by Atumwa (2013) which found that significant relationship between leverage and asset utilization (efficiency).

The correlation between expense and efficiency is -0.197966, implying that for every unit increase in expense, there is a decrease in efficiency by 0.197966 or

19.80% and vice versa. This result is same result found by Aziz (2015) who found that expense ratio is negative and significant relationship with asset turnover (efficiency).

The correlation between size and expense is -0.152033, showing that when size changes by 1%, expense will change by 0.15%. The same result found by Aziz (2015) where size have negative and significant relationship with expense ratio.

Other correlation among independent variables was not significant which are correlation between leverage and size, leverage and company growth, leverage and expense, size and company growth and size and efficiency which have positive and not significant and the correlation value are 0.075573, 0.065004, 0.006394, 0.072451 and 0.039754 respectively. Meanwhile correlation between company growth and expense and company growth and efficiency is negative and not significant and the correlation value are -0.022564 and -0.047540. However, there are no correlation value exceeds 0.8 means that multicollinearity not exists among variables in the data.

4.4 Diagnostic Tests

This section discusses diagnostic test which are normality test, heteroscedasticity test and multicollinearity test.

4.4.1 Normality Test

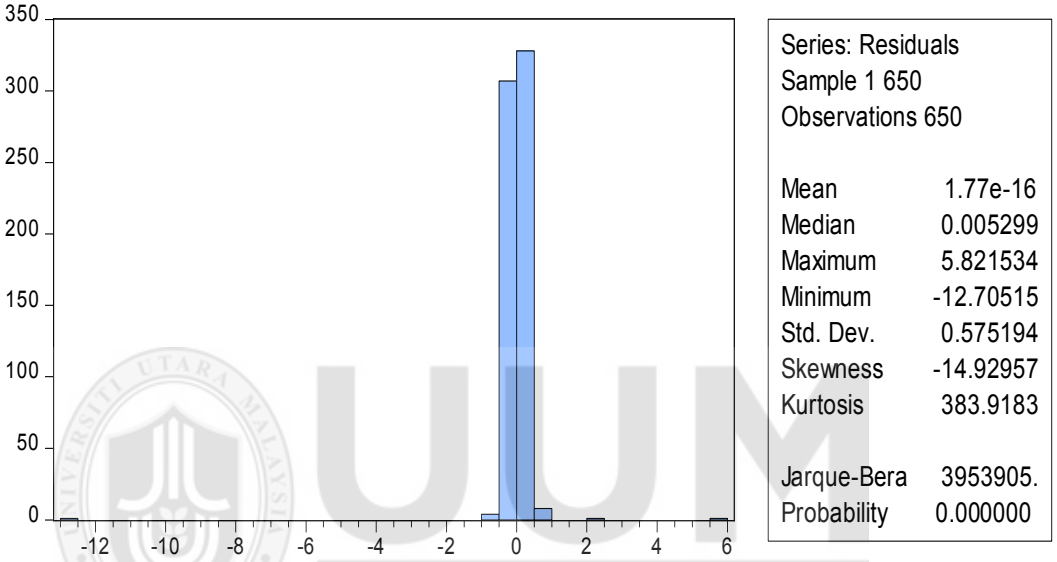

Table 4.3 – Normality Test

Normality tests are conducted to determine whether or not the data are normally distributed. From the results in table 4.3 in this study show that P value is 0.0000 which is less than 5% means that the variables does not follow normal distribution. However, we still can use the data since it not big issue and does not pose a serious problem in panel regression.

4.4.2 Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.891994	Prob. F(5,644)	0.0018
Obs*R-squared	19.06518	Prob. Chi-Square(5)	0.0019
Scaled explained SS	3583.126	Prob. Chi-Square(5)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/30/19 Time: 23:54
Sample: 1 650
Included observations: 650

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.518726	4.450446	2.138825	0.0328
COMPANY_GROWTH	-0.083568	0.175447	-0.476314	0.6340
EFFICIENCY	-0.506096	0.572186	-0.884496	0.3768
EXPENSE	0.617181	0.842635	0.732441	0.4642
LEVERAGE	4.980041	1.379108	3.611060	0.0003
SIZE	-0.537316	0.226981	-2.367227	0.0182

R-squared	0.029331	Mean dependent var	0.330339
Adjusted R-squared	0.021795	S.D. dependent var	6.469144
S.E. of regression	6.398259	Akaike info criterion	6.559117
Sum squared resid	26363.89	Schwarz criterion	6.600443
Log likelihood	-2125.713	Hannan-Quinn criter.	6.575146
F-statistic	3.891994	Durbin-Watson stat	2.094246
Prob(F-statistic)	0.001752		

Table 4.4- Heteroscedasticity Test

Homoscedasticity describes a situation in which the error term (that is the random disturbance in the relationship between the independent variables and the dependent variable) is the same across all value of the independent variable. Meanwhile, heteroscedasticity which is the violation of homoscedasticity is present when size of the error term differs across values of independent variables. Variables are not heteroscedasticity or meaning the variables are homoscedasticity if P value is more than 5%. From the table, Obs*R-squared value is 19.06518 and P value at 0.0019 or 0.19% which is less than 5% means

that the data are heteroscedasticity and we cannot accept the model. However, we still can use the data since it not big issue and does not pose a serious problem in panel regression.

4.4.3 Multicollinearity Test

Variance Inflation Factors
Date: 07/01/19 Time: 02:30
Sample: 1 650
Included observations: 650

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
COMPANY_GROWTH	0.000251	1.021731	1.014748
EFFICIENCY	0.002666	6.038560	1.144739
EXPENSE	0.005783	1.620833	1.071173
LEVERAGE	0.015490	4.158577	1.107231
SIZE	0.000420	307.8879	1.034299
C	0.161313	314.4827	NA

Table 4.5 – Multicollinearity Test

Multicollinearity is a state of very high intercorrelations or inter-association among the independent variables. It is therefore a type of disturbance in the data, which may distort the result of regression according to Hair et al. (2010) and if present in the data the statistical inferences made about the data may not be reliable. In other word, high correlation between independent variables could bring about unreliable findings. There are two methods to test whether the data have multicolllinearity or not. First method is to do correlation analysis among the independent variables. If there is significant correlation which is correlation exceeds 0.8 between independent variables means the data have multicollinearity. As discuss in chapter 4.2 correlation analysis, there are no correlation exceeds 0.8 means that there is no multicollinearity among the

variables. Second method is to find the "Variance Inflation Factor" (VIF) value. If VIF value less than 3, there is no multicollinearity exists among the variables. In this study, Eviews system have been used to generate VIF value. From the table 4.4.3 above stated that all centered VIF value less 3. It means that there multicollinearity does not exist among the variables.

4.4.4 Stationary Test

A stationary series is said to be a flat series without trend whereby the mean and variance are constant over time and have no periodic fluctuations. Stationary of the series also means that the distribution of the series does not change much. It provides framework in which averaging make sense. In this study, Eviews software is used to do stationary test. The table of result from stationery test can be seen at appendix I to appendix V.

The result from the stationery test show that all variables which is leverage, growth, size, expense and efficiency are stationery. Result from the test show that t-statistic value is more than critical value and P value is less than 5% for all variables. This mean that all variables are stationery and the series are constant over time for all variables.

4.5 Multiple Linear Regression Analysis

Dependent Variable: ROE
Method: Least Squares
Samples: 1 650
Included observations: 650

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.406983	0.401638	-3.503109	0.0005
COMPANY_GROWTH	0.006285	0.015834	0.396932	0.6915
EFFICIENCY	0.117989	0.051638	2.284939	0.0226
EXPENSE	0.065821	0.076045	0.865546	0.3871
LEVERAGE	-0.467764	0.124460	-3.758348	0.0002
SIZE	0.076591	0.020484	3.739010	0.0002

R-squared	0.041587	Mean dependent var	0.057497
Adjusted R-squared	0.034146	S.D. dependent var	0.587540
S.E. of regression	0.577422	Akaike info criterion	1.748702
Sum squared resid	214.7201	Schwarz criterion	1.790028
Log likelihood	-562.3280	Hannan-Quinn criter	1.764731
F-statistic	5.588809	Durbin-Watson stat	2.184336
Prob (F-statistic)	0.000047		

Table 4.6: Regressions between ROE and Independent Variables (Company Growth, Efficiency, Expense, Leverage and Size)

Table 4.6 above shows the regression results of ROE against the independent variables which are company growth, efficiency, expense leverage and size for 130 companies in manufacturing sector in Malaysia using Eviews statistical package.

The results show that the R^2 is 4.16 %, which is quite low, but does not pose a serious problem in panel regression since the R square value does not have a critical value that allows a formation of conclusion. (Keller and Warrack, 2003).

Three out of the five independent variables are found to be significantly related with ROE, namely, efficiency, leverage and size. The result in table 4.5 shows that efficiency is positively and significantly related with ROE (Coefficient = 0.1179, p = 0.0226) and this is similar with the findings by Santosuosso (2014), Sari et al. (2011), Sarwat (2017) and Jabbari et al. (2013). The positive relationship shows that more efficient a company used their assets, more profitable the company or increase the corporate performance. Santosuosso (2014) found that positive and significant association between efficiency where proxies by asset turnover, inventory turnover and account receivables turnover and firm performance (ROE). While Sari et al. found that variable efficiency measured by asset turnover influence positive and significantly to variable return on assets (ROA). Sarwat (2017) and Jabbari et al. (2013) in their studies found that asset turnover (efficiency) have positive and significant relationship with firm performance (ROA). Inconsistent with the findings by Warrad and Omari (2015) where the studied show that there is no significant impact of turnover ratio (efficiency) on Jordanian service sectors' profitability (ROE).

Meanwhile for leverage, the result in this study shows that leverage is negatively and significantly related with ROE (Coefficient = -0.467764, p = 0.0002). The

negative relationship shows that more less used debt in financing the business will increase corporate performance. This result in-line and consistent with the findings by Akeem et al. (2014), Abeywardhana (2015), Habib et al. (2016), Javed et al. (2015) and Muscettola (2016). Akeem et al. (2014) found that debt to equity ratio has negative association with firm performance. Abeywardhana (2015) in his studied also show that a significant relationship between capital structure and profitability and the relationship is negatively related. The study conducted by Habib et al. (2016) shows that debt and ROA are negatively related. Similar findings are shown in by Javed et al. (2015) and Muscettola (2016) who found that leverage is negatively related to both ROAand ROE. Meanwhile, the result is inconsistent with the studied by Idode et al. (2014) whereby debt is positively related with ROA.

Table 4.6 shows that size is positive and significant related with ROE (Coefficient = 0.076591, p = 0.0002) and this finding in-line and consistent with studied by Niresh and Velnampy (2014), Pervan and Visic (2012), Abbasi and Malik (2015), Abiodun (2013), Inyiama and Victoria (2014), Mule et al. (2015) and Vinasithamby (2015). In Niresh and Velnampy (2014), it was found that size and profitability are positively related among manufacturing firms in Sri Lanka. Pervan and Visic (2012) found that size have weak positive impact on profitability and Abbasi and Malik (2015) also found that firm size has moderating effect on firm performance. Abiodun (2013) and Inyiama and Victoria (2014) found that firm size has a positive influence on profitability. The

study by Mule et al. (2015) also found positive relationship between size and ROE, and so did Vinasithamby (2015).

Meanwhile two out five independent variables are found to be not significant related with ROE, namely company growth and expense. The result table 4.5 shows that company growth is not significant related with ROE (Coefficient = 0.006285, p = 0.6915) and similar with variable expense which is not significant related with ROE (Coefficient = 0.065821, p = 0.3871)

4.6 Chapter Summary

This chapter presents the findings of this study in the form of descriptive statistics, correlation analysis, and regression analysis. Normality test and stationary test were conducted. In the regression result, three independent variables, namely, efficiency, leverage and size are found to be significantly related to ROE.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter consists of summary findings, conclusion of the study, limitation, recommendation and suggestion for further studies. This study is intended to determine the relationship between the five independent variables namely leverage, size, growth, expense and efficiency and a dependent variable corporate performance.

5.2 Summary of Findings

The objective of this study is to examine the relationship between agency cost and corporate performance of manufacturing companies listed in Bursa Malaysia for the period from 2011 to 2016. To achieve this o, a regression analysis was conducted whereby corporate performance was regressed against the independent variables namely, leverage, size, growth, expense and efficiency. Data for all variables were obtained from Bursa Malaysia.

The study found that in the model, three out of five proxy of agency cost are significantly related to corporate performance which measured by ROE. The three variables which significantly related with corporate performance (ROE) are efficiency, leverage and size with p-value of 0.0226, 0.0002 and 0.0002 respectively as per table 4.6. Other two variables found that not significant related with corporate performance (ROE) which are company growth and expense with p-value 0.6915 and 0.3871 respectively. Hence the study found that agency cost to be significantly related with corporate performance.

The study also found that there was no multiconllinearity and autocorrelation among all the variables tested. Finally, the result in this study found that the data in this study are stationery mean that the distribution of the data constant over time, no periodic fluctuation and the data does not change much.

5.3 Limitation

One of the limitations is the scope of this study in which the sample size focuses only on the manufacturing sector which exclude the involvement the other sectors such as transportation, service, communication and many others. In this research, researchers could learn how the independent variables can affect the corporate performance in manufacturing sector in Malaysia from year 2011 to 2016. However, different findings might occur if other sectors are used in this study.

Secondly, this study is based on the time period from 2011 to 2016. If different time was chosen, different results would have been reported. Besides, there are some companies in manufacturing sector having different closing accounting period for their company annual reports. Therefore, the accuracy of the data could still be improved if all companies have same closing accounting period.

5.4 Recommendations for Further Studies

One of the recommendations that can be made is that, future researcher should study other sector to see the relationship between agency cost and corporate performance in Malaysia. This is due to the reason of future researchers can compare and evaluate the consistency of the result in this study which used manufacturing sector with other sectors.

Further study in this area needs to include more independent variable to measured agency cost so that researcher can compare the consistency of the result with this study. This study also recommends that future researchers should use same accounting period for their data collection. This will make the result become more accurate and efficient.

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Appendix I

Stationery Test for Leverage

Null Hypothesis: LEVERAGE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.63943	0.0000
Test critical values:	1% level	-3.440197	
	5% level	-2.865776	
	10% level	-2.569083	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LEVERAGE)
Method: Least Squares
Date: 12/03/18 Time: 17:24
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEVERAGE(-1)	-0.347607	0.029865	-11.63943	0.0000
C	0.110332	0.011091	9.948132	0.0000

R-squared	0.173138	Mean dependent var	-0.000301
Adjusted R-squared	0.171860	S.D. dependent var	0.159982
S.E. of regression	0.145587	Akaike info criterion	-1.013013
Sum squared resid	13.71348	Schwarz criterion	-0.999221
Log likelihood	330.7226	Hannan-Quinn criter.	-1.007663

F-statistic	135.4763	Durbin-Watson stat	1.952261
Prob(F-statistic)	0.000000		

Stationary test for leverage with exogenous constant

Above table shows that stationary test for leverage with exogenous constant. To accept null hypothesis which is leverage has a unit root or not stationary, the P value must more that 5% and t-Statistic value must less than test critical values at 1%, 5% and 10% level. From the above table shows that P value is less than 5% which is 0% and t-Statistic value stand at 11.63943 which is more than test critical values at 1%, 5% and 10% level. This means that we cannot accept null hypothesis and the variable is stationery.

Null Hypothesis: LEVERAGE has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.62948	0.0000
Test critical values:	1% level	-3.972257	
	5% level	-3.416757	
	10% level	-3.130725	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LEVERAGE)
Method: Least Squares
Date: 12/03/18 Time: 18:40
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEVERAGE(-1)	-0.347618	0.029891	-11.62948	0.0000
C	0.110085	0.014792	7.442257	0.0000
@TREND("1")	7.74E-07	3.05E-05	0.025355	0.9798

R-squared	0.173139	Mean dependent var	-0.000301
Adjusted R-squared	0.170579	S.D. dependent var	0.159982
S.E. of regression	0.145699	Akaike info criterion	-1.009932
Sum squared resid	13.71347	Schwarz criterion	-0.989244
Log likelihood	330.7230	Hannan-Quinn criter.	-1.001907
F-statistic	67.63386	Durbin-Watson stat	1.952241
Prob(F-statistic)	0.000000		

Stationary test for leverage with exogenous constant and linear trend

Above table shows that stationary test for variable leverage with exogenous constant and linear trend. Same result, the P value is less than 5% and t-Statistic value is more than test critical values at 1%, 5% and 10% level. Hence, the variable is stationery.

Null Hypothesis: LEVERAGE has a unit root
Exogenous: None
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.924979	0.0034
Test critical values:	1% level	-2.568558	
	5% level	-1.941315	
	10% level	-1.616369	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LEVERAGE)
Method: Least Squares
Date: 12/03/18 Time: 19:08
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEVERAGE(-1)	-0.050310	0.017200	-2.924979	0.0036
D(LEVERAGE(-1))	-0.169625	0.039543	-4.289614	0.0000
D(LEVERAGE(-2))	-0.156825	0.039611	-3.959134	0.0001
D(LEVERAGE(-3))	-0.110600	0.039579	-2.794399	0.0054
D(LEVERAGE(-4))	-0.108779	0.038963	-2.791842	0.0054
D(LEVERAGE(-5))	-0.251608	0.038230	-6.581360	0.0000

R-squared	0.131339	Mean dependent var	-0.000165
Adjusted R-squared	0.124532	S.D. dependent var	0.160236
S.E. of regression	0.149927	Akaike info criterion	-0.948065
Sum squared resid	14.34100	Schwarz criterion	-0.906441
Log likelihood	311.2771	Hannan-Quinn criter.	-0.931913
Durbin-Watson stat	2.045275		

Stationary test for leverage with exogenous none

Above table shows that stationary test for variable leverage with exogenous none. Same result with exogenous constant and constant, linear trend, the P value which is stand at 0.0034 is less than 5% and t-Statistic value which is stand at 2.924979 is more than test critical values at 1%, 5% and 10% level. Hence, we cannot accept null hypothesis and the variable is stationery.

From three test above can be conclude that variable leverage is stationery.

Appendix II

Stationery Test for Size

Null Hypothesis: SIZE has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.837200	0.0000
Test critical values:	1% level	-3.440275	
	5% level	-2.865810	
	10% level	-2.569102	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SIZE)
Method: Least Squares
Date: 12/03/18 Time: 19:23
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE(-1)	-0.253819	0.032386	-7.837200	0.0000
D(SIZE(-1))	0.129217	0.040050	3.226360	0.0013
D(SIZE(-2))	0.073105	0.039904	1.832033	0.0674
D(SIZE(-3))	0.071111	0.039350	1.807126	0.0712
D(SIZE(-4))	0.097607	0.038793	2.516097	0.0121
D(SIZE(-5))	-0.195556	0.038699	-5.053317	0.0000
C	4.919971	0.627734	7.837673	0.0000

R-squared	0.179515	Mean dependent var	0.004344
Adjusted R-squared	0.171787	S.D. dependent var	0.733924
S.E. of regression	0.667916	Akaike info criterion	2.041502
Sum squared resid	284.1734	Schwarz criterion	2.090064
Log likelihood	-650.3637	Hannan-Quinn criter.	2.060346
F-statistic	23.22839	Durbin-Watson stat	1.977793
Prob(F-statistic)	0.000000		

Stationary test for size with exogenous constant

Above table shows that stationary test for variable size with exogenous constant. The table shows that P value is less than 5% which is stand at 0 and t-Statistic value stand at 7.837200 which is more than test critical values at 1%, 5% and 10% level. Hence, the variable is stationary.

Null Hypothesis: SIZE has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.839067	0.0000
Test critical values:	1% level	-3.972368	
	5% level	-3.416811	
	10% level	-3.130757	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SIZE)
Method: Least Squares
Date: 12/03/18 Time: 19:29
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE(-1)	-0.254533	0.032470	-7.839067	0.0000
D(SIZE(-1))	0.129591	0.040091	3.232389	0.0013
D(SIZE(-2))	0.073470	0.039944	1.839330	0.0663
D(SIZE(-3))	0.071459	0.039389	1.814190	0.0701
D(SIZE(-4))	0.097912	0.038829	2.521606	0.0119
D(SIZE(-5))	-0.195223	0.038736	-5.039776	0.0000
C	4.917141	0.628213	7.827187	0.0000
@TREND("1")	5.09E-05	0.000142	0.358369	0.7202

R-squared	0.179681	Mean dependent var	0.004344

Adjusted R-squared	0.170652	S.D. dependent var	0.733924
S.E. of regression	0.668374	Akaike info criterion	2.044406
Sum squared resid	284.1161	Schwarz criterion	2.099905
Log likelihood	-650.2987	Hannan-Quinn criter.	2.065942
F-statistic	19.90116	Durbin-Watson stat	1.977554
Prob(F-statistic)	0.000000		

Stationary test for size with exogenous constant and linear trend

Above table shows stationary test for variable size with exogenous constant and linear trend. The result show that with P value stand at 0% which is less than 5% and t-Statistic value stand at 7.839067 which is more than test critical values at 1%, 5% and 10% level. Hence, the variable is stationary.

Null Hypothesis: SIZE has a unit root
Exogenous: None
Lag Length: 10 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.024652	0.6903
Test critical values:	1% level	-2.568586	
	5% level	-1.941319	
	10% level	-1.616366	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SIZE)
Method: Least Squares
Date: 12/03/18 Time: 19:52
Sample (adjusted): 12 650
Included observations: 639 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE(-1)	3.42E-05	0.001386	0.024652	0.9803
D(SIZE(-1))	-0.027581	0.038614	-0.714266	0.4753
D(SIZE(-2))	-0.094398	0.038621	-2.444210	0.0148
D(SIZE(-3))	-0.084211	0.038766	-2.172294	0.0302
D(SIZE(-4))	-0.038672	0.038747	-0.998074	0.3186
D(SIZE(-5))	-0.396577	0.038749	-10.23449	0.0000
D(SIZE(-6))	-0.041009	0.038639	-1.061330	0.2889
D(SIZE(-7))	-0.087286	0.038641	-2.258881	0.0242
D(SIZE(-8))	-0.043830	0.038655	-1.133871	0.2573
D(SIZE(-9))	-0.021486	0.038496	-0.558145	0.5769
D(SIZE(-10))	-0.254319	0.038630	-6.583414	0.0000

R-squared	0.163563	Mean dependent var	0.003641
Adjusted R-squared	0.150244	S.D. dependent var	0.736641
S.E. of regression	0.679052	Akaike info criterion	2.080826
Sum squared resid	289.5779	Schwarz criterion	2.157600
Log likelihood	-653.8239	Hannan-Quinn criter.	2.110628
Durbin-Watson stat	2.006012		

Stationary test for size with exogenous none

Meanwhile, stationary test with exogenous none give a different result. As per table above show that P value stand at 0.6903 which is more than 5%. And t-Statistic stand at 0.024652 which is less than test critical values at 1%, 5% and 10%. This result shows that the null hypothesis cannot be reject which is variable size has a unit root. Hence, the variable is nonstationary with exogenous none.

Two out of three test above show that variable size is stationery. Hence, can be conclude that variable size is stationery.

Appendix III

Stationery Test for Company Growth

Null Hypothesis: COMPANY_GROWTH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-25.45924	0.0000
Test critical values:	1% level	-3.440197	
	5% level	-2.865776	
	10% level	-2.569083	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COMPANY_GROWTH)
Method: Least Squares
Date: 12/03/18 Time: 19:59
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COMPANY_GROWTH(-1)	-1.000901	0.039314	-25.45924	0.0000
C	0.119852	0.056886	2.106878	0.0355

R-squared	0.500453	Mean dependent var	8.03E-05
Adjusted R-squared	0.499681	S.D. dependent var	2.041814
S.E. of regression	1.444241	Akaike info criterion	3.576122
Sum squared resid	1349.534	Schwarz criterion	3.589914
Log likelihood	-1158.452	Hannan-Quinn criter.	3.581472
F-statistic	648.1728	Durbin-Watson stat	2.000035
Prob(F-statistic)	0.000000		

Stationary test for company growth with exogenous constant

Table above shows that stationary test for variable company growth with exogenous constant. The table shows that P value stand at 0% which is less than 5% and t-Statistic stand at 25.45924 which is more than test critical value at 1%, 5% and 10%. Hence, the variable is stationary.

Null Hypothesis: COMPANY_GROWTH has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-25.44328	0.0000
Test critical values:	1% level	-3.972257	
	5% level	-3.416757	
	10% level	-3.130725	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COMPANY_GROWTH)
Method: Least Squares
Date: 12/03/18 Time: 20:44
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COMPANY_GROWTH(-1)	-1.001053	0.039344	-25.44328	0.0000
C	0.089590	0.113647	0.788316	0.4308
@TREND("1")	9.32E-05	0.000303	0.307671	0.7584

R-squared	0.500526	Mean dependent var	8.03E-05
Adjusted R-squared	0.498980	S.D. dependent var	2.041814
S.E. of regression	1.445253	Akaike info criterion	3.579057
Sum squared resid	1349.336	Schwarz criterion	3.599745
Log likelihood	-1158.404	Hannan-Quinn criter.	3.587082
F-statistic	323.6802	Durbin-Watson stat	2.000029
Prob(F-statistic)	0.000000		

Stationary test for company growth with exogenous constant and linear trend

While, stationary test for variable company growth with exogenous constant and linear trend shows that P value also less than 5% which is stand at 0% and t-

Statistic value stand at 25.44328 which is more than test critical value at 1%, 5% and 10%. Hence, the variable is stationary.

Null Hypothesis: COMPANY_GROWTH has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-25.30485	0.0000
Test critical values:	1% level	-2.568530	
	5% level	-1.941312	
	10% level	-1.616371	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COMPANY_GROWTH)
Method: Least Squares
Date: 12/04/18 Time: 18:41
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COMPANY_GROWTH(-1)	-0.994051	0.039283	-25.30485	0.0000

R-squared	0.497025	Mean dependent var	8.03E-05
Adjusted R-squared	0.497025	S.D. dependent var	2.041814
S.E. of regression	1.448069	Akaike info criterion	3.579878
Sum squared resid	1358.793	Schwarz criterion	3.586774
Log likelihood	-1160.670	Hannan-Quinn criter.	3.582553
Durbin-Watson stat	1.999898		

Stationary test for company growth with exogenous none

Above table shows that stationary test for variable company growth with exogenous none. The table show that the P value also less than 5% which is stand at 0% and t-Statistic value stand at 25.30485 which is more than test critical values at 1%, 5% and 10%. Hence, the variable is stationary.

From the three test above can be conclude that variable company growth is stationery.

Appendix IV

Stationery Test for Expense

Null Hypothesis: EXPENSE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-19.46236	0.0000
Test critical values:	1% level	-3.440197	
	5% level	-2.865776	
	10% level	-2.569083	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXPENSE)
Method: Least Squares
Date: 12/04/18 Time: 19:06
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPENSE(-1)	-0.739263	0.037984	-19.46236	0.0000
C	0.163617	0.014389	11.37077	0.0000

R-squared	0.369263	Mean dependent var	0.000771
Adjusted R-squared	0.368288	S.D. dependent var	0.375220
S.E. of regression	0.298226	Akaike info criterion	0.421146
Sum squared resid	57.54335	Schwarz criterion	0.434938
Log likelihood	-134.6619	Hannan-Quinn criter.	0.426496
F-statistic	378.7836	Durbin-Watson stat	2.050423
Prob(F-statistic)	0.000000		

Stationary test for expense with exogenous constant

From the table above shows that stationary test for variable expense with exogenous constant. The table shows that P value is less than 5% which is stand at 0% and t-Statistic stand at 19.46236 which is more than test critical values at 1%, 5% and 10% level. Hence, the variable is stationary.

Null Hypothesis: EXPENSE has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-19.47820	0.0000
Test critical values:	1% level	-3.972257	
	5% level	-3.416757	
	10% level	-3.130725	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXPENSE)
Method: Least Squares
Date: 12/04/18 Time: 19:39
Sample (adjusted): 2 650
Included observations: 649 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPENSE(-1)	-0.740674	0.038026	-19.47820	0.0000
C	0.146213	0.024618	5.939345	0.0000
@TREND("1")	5.45E-05	6.26E-05	0.871352	0.3839

R-squared	0.370003	Mean dependent var	0.000771
Adjusted R-squared	0.368053	S.D. dependent var	0.375220
S.E. of regression	0.298281	Akaike info criterion	0.423053
Sum squared resid	57.47579	Schwarz criterion	0.443741
Log likelihood	-134.2808	Hannan-Quinn criter.	0.431078
F-statistic	189.7010	Durbin-Watson stat	2.049731
Prob(F-statistic)	0.000000		

Stationary test for expense with exogenous constant and linear trend

As per above table, stationary test for variable expense with exogenous constant and linear trend shows that P value stand at 0% which is less than 5% and t-

Statistic value is more than test critical values at 1%, 5% and 10% which is 19.47820. This shows that the variable is stationary.

Null Hypothesis: EXPENSE has a unit root
Exogenous: None
Lag Length: 2 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.815334	0.0000
Test critical values:	1% level	-2.568541	
	5% level	-1.941313	
	10% level	-1.616370	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXPENSE)
Method: Least Squares
Date: 12/04/18 Time: 20:10
Sample (adjusted): 4 650
Included observations: 647 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPENSE(-1)	-0.314709	0.040268	-7.815334	0.0000
D(EXPENSE(-1))	-0.333539	0.045003	-7.411552	0.0000
D(EXPENSE(-2))	-0.137536	0.039156	-3.512505	0.0005

R-squared	0.303066	Mean dependent var	0.000740
Adjusted R-squared	0.300901	S.D. dependent var	0.375799
S.E. of regression	0.314213	Akaike info criterion	0.527135
Sum squared resid	63.58204	Schwarz criterion	0.547873
Log likelihood	-167.5283	Hannan-Quinn criter.	0.535181
Durbin-Watson stat	2.021754		

Stationary test for expense with exogenous none

Table above shows that stationary test for variable expense with exogenous none. The P value is less than 5% which is 0% and t-Statistic stand at 7.815334 which

is more than test critical value at 1%, 5% and 10%. Hence, the variable expense is stationary.

From the three test above can be conclude that variable expense is stationery.

Appendix V

Stationery Test for Efficiency

Null Hypothesis: EFFICIENCY has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.358179	0.0000
Test critical values:	1% level	-3.440275	
	5% level	-2.865810	
	10% level	-2.569102	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EFFICIENCY)
Method: Least Squares
Date: 12/04/18 Time: 20:20
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EFFICIENCY(-1)	-0.345497	0.041336	-8.358179	0.0000
D(EFFICIENCY(-1))	0.095378	0.043636	2.185789	0.0292
D(EFFICIENCY(-2))	0.085223	0.042608	2.000165	0.0459
D(EFFICIENCY(-3))	0.062100	0.041145	1.509302	0.1317
D(EFFICIENCY(-4))	0.091514	0.039893	2.293978	0.0221
D(EFFICIENCY(-5))	-0.202484	0.038774	-5.222118	0.0000
C	0.334950	0.042182	7.940674	0.0000

R-squared	0.217511	Mean dependent var	-0.000509
Adjusted R-squared	0.210141	S.D. dependent var	0.365608
S.E. of regression	0.324930	Akaike info criterion	0.600397
Sum squared resid	67.25424	Schwarz criterion	0.648959
Log likelihood	-186.3280	Hannan-Quinn criter.	0.619241
F-statistic	29.51156	Durbin-Watson stat	1.994886

Prob(F-statistic)	0.000000

Stationary test for efficiency with exogenous constant

From the table above shows that stationary test for variable efficiency with exogenous constant. The table shows that P value is less than 5% which is 0% and t-Statistic stand at 19.46236 which is more than test critical values at 1%, 5% and 10% level. Hence, the variable is stationary.

Null Hypothesis: EFFICIENCY has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.396166	0.0000
Test critical values:	1% level	-3.972368	
	5% level	-3.416811	
	10% level	-3.130757	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EFFICIENCY)
Method: Least Squares
Date: 12/04/18 Time: 23:13
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EFFICIENCY(-1)	-0.348116	0.041461	-8.396166	0.0000
D(EFFICIENCY(-1))	0.096772	0.043676	2.215649	0.0271
D(EFFICIENCY(-2))	0.086477	0.042643	2.027913	0.0430
D(EFFICIENCY(-3))	0.063350	0.041180	1.538356	0.1245
D(EFFICIENCY(-4))	0.092648	0.039925	2.320575	0.0206
D(EFFICIENCY(-5))	-0.201411	0.038804	-5.190501	0.0000
C	0.356640	0.049369	7.224021	0.0000
@TREND("1")	-5.85E-05	6.91E-05	-0.846098	0.3978

R-squared	0.218391	Mean dependent var	-0.000509
Adjusted R-squared	0.209789	S.D. dependent var	0.365608
S.E. of regression	0.325003	Akaike info criterion	0.602378
Sum squared resid	67.17862	Schwarz criterion	0.657877
Log likelihood	-185.9657	Hannan-Quinn criter.	0.623914
F-statistic	25.38661	Durbin-Watson stat	1.994702
Prob(F-statistic)	0.000000		

Stationary test for efficiency with exogenous constant and linear trend

Table above shows that stationary test for variable efficiency with exogenous constant and linear trend. The table show that P value is less than 5% which is 0% and t-Statistic stand at 8.396166 which is more than test critical values at 1%, 5% and 10%. Hence, the variable is stationary.

Null Hypothesis: EFFICIENCY has a unit root
Exogenous: None
Lag Length: 5 (Automatic - based on SIC, maxlag=19)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.491378	0.0124
Test critical values:	1% level	-2.568558	
	5% level	-1.941315	
	10% level	-1.616369	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EFFICIENCY)
Method: Least Squares
Date: 12/04/18 Time: 23:17
Sample (adjusted): 7 650
Included observations: 644 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EFFICIENCY(-1)	-0.032746	0.013144	-2.491378	0.0130
D(EFFICIENCY(-1))	-0.097479	0.037974	-2.566990	0.0105
D(EFFICIENCY(-2))	-0.091566	0.038055	-2.406165	0.0164
D(EFFICIENCY(-3))	-0.094329	0.037838	-2.492967	0.0129
D(EFFICIENCY(-4))	-0.044994	0.037709	-1.193174	0.2332
D(EFFICIENCY(-5))	-0.323041	0.037373	-8.643664	0.0000

R-squared	0.140056	Mean dependent var	-0.000509
Adjusted R-squared	0.133316	S.D. dependent var	0.365608
S.E. of regression	0.340366	Akaike info criterion	0.691680
Sum squared resid	73.91149	Schwarz criterion	0.733305
Log likelihood	-216.7210	Hannan-Quinn criter.	0.707832
Durbin-Watson stat	2.052885		

Stationary test for efficiency with exogenous none

Above table shows that stationary test for variable efficiency with exogenous none. The table shows that P value is less than 5% which is 1.24% and t-Statistic is more than test critical value at 5% and 10%. Hence, the variable is stationary.

From the three test above can be conclude that variable efficiency is stationery.